

National Cave and Karst Research Institute--History, Status, and Future

By ¹Zelda Chapman Bailey

¹National Park Service, 7333 W. Jefferson Ave., PO Box 25287, Denver CO 80225

Abstract

The National Cave and Karst Research Institute Act of 1998 mandated the National Park Service to establish the Institute. The Act stipulated that the Institute will be located in the vicinity of Carlsbad Caverns National Park in New Mexico (but not inside Park boundaries), and that the Institute cannot spend Federal funds without a match of private funds. The main purposes of the Institute are to further the science of speleology, to encourage and provide public education in the field, and to promote environmentally sound cave and karst management. The Interim Director for the Institute reported in July 2000 for a two-year period to define the purview and scope of operation, design an organizational structure, form partnerships, find funding sources, find a physical facility, and define research needs.

AUTHORIZATION

The National Cave and Karst Research Institute (hereafter referred to as the Institute) was mandated by act of Congress in 1998 (Public Law 105-325) under the organizational structure of the National Park Service (NPS). The 1998 Act was the culmination of many years of effort by the caving community, private and Federal, to have legislation enacted that facilitated gaining a scientific basis for cave and karst management. While the 1998 Act authorized the Institute, no funds have been appropriated yet.

During the decade before the 1998 Act was passed, other cave and karst related acts were passed. The Federal Cave Resources Protection Act of 1988 (Public Law 100-691) directs the Secretaries of the Interior and Agriculture to inventory and list significant caves on Federal lands, and provides a basis for protecting caves. Another enactment in 1990 (Public Law 101-578) further directed the Secretary of the Interior, through the Director of the National Park Service, to establish and administer a Cave Research Program, and to prepare a proposal for Congress that examined the feasibility of a centralized National Cave Research Institute. This proposal was presented to Congress in December 1994 and is the basis for the 1998 Act establishing the mandate for the Institute. The Lechuguilla Cave Protection Act (Public Law 103-169), passed in 1993, recognized the international significance of the scientific and environmental values of the cave.

Primary stipulations of the 1998 Act were that the Institute be located in the vicinity of Carlsbad Caverns National Park in New Mexico (but not inside Park boundaries), and that Federal funds must be matched by private funds.

The Interim Director for the Institute was recruited in July 2000 for a two-year period to move forward with NPS efforts to establish the Institute by defining the purview and scope of operation, designing an organizational structure, forming partnerships, finding funding sources and a physical facility, and defining research needs.

MISSION AND GOALS

The mission provides a framework for the Institute to achieve its congressionally defined goals and to guide development of an appropriate scope of activities in the National interest:

The National Cave and Karst Research Institute furthers the science of speleology by facilitating research, enhances public education, and promotes environmentally sound cave and karst management.

The goals (purposes) of the Institute are clearly and simply stated in the text of the 1998 Act. Following are expanded statements of goals that provide a broader view of the operational intent of the Institute:

- Further the science of speleology through coordination and facilitation of research.
- Provide a point-of-contact for dealing with cave and karst issues by providing analysis and synthesis of speleological information and serving as a repository of information.
- Foster partnerships and cooperation in cave and karst research, education, and management programs.
- Promote and conduct cave and karst educational programs.

- Promote national and international cooperation in protecting the environment for the benefit of caves and karst landforms and systems.
- Develop and promote environmentally sound and sustainable cave and karst management practices, and provide information for applying these practices.

ACCOMPLISHING THE GOALS

When the Institute becomes operational, a variety of activities can be undertaken to accomplish the stated goals. Some of the major activities could include:

- Develop and support short- and long-term speleological research studies by identifying research needs of National interest. Promote research focused on the needs through Institute research scientists, visiting scientists, and/or through a grant process.

An appropriate niche for the Institute is to support and encourage a body of research that would be the most useful nationally and for a variety of agencies and organizations. This focus would not preclude support of a wide variety of research topics, but research within the identified needs would be favored for grants and support. Issues for research would be determined by querying the needs and problems of a variety of agencies that manage caves and karst areas, and by consulting with universities and private organizations.

- Establish a comprehensive cave and karst library, research bibliography, and list of experts in speleological research.

No single institution is likely to be able to accumulate all references and knowledge on a particular topic; however, it is the goal of the Institute to amass as comprehensive a reference library as possible to provide a single source to research scientists and agencies. Linkages to other institutes and organizations housing resource libraries would also be a means to expand the virtual collection of the Institute. A fully functional research library is envisioned; however, a system of flexible access that requires only a minimum of staff to design, support, and maintain is critical. A database of scientists and research specialists could be an important service provided to those needing studies done or to scientists looking for collaborators.

- Develop a centralized data storage and retrieval system, and establish a comprehensive cave and karst information database. Develop methods to access and retrieve speleological data and information from worldwide sources. Establish a cave management information database.

Providing quick and easy access nationally and internationally to data and information would be critical to the information-management function of the Institute, and to facilitate synthesis of research findings. The Carlsbad location may not be accessible to all that need the resources, thus, remote and computer access to databases will be important. It is important to emphasize that the Institute would not hold proprietary information, such as cave entrance locations, that are not already publicly available.

- Sponsor national and international speleological and cave and karst symposia and cave and karst management seminars, and provide educational material.

Focused meetings and seminars would facilitate interaction among scientists to further the science, and provide a venue to convey management strategies to resource managers and decision-makers. A variety of cave related educational publications, visual materials and videotapes, and educational displays could be produced or sponsored and targeted to different audiences: scientists, managers, schools, and the public, who need to understand the implications of resource use or misuse.

- Establish and maintain contacts in other agencies, universities, corporations, and private sector groups engaged in activities related to caves and karst areas.

Formal agreements would be developed with other agencies having cave management responsibilities or research capabilities, with Universities and with cave and karst related organizations. Informal contacts also would be maintained with other organizations that have interest in the Institute programs.

- Develop a funding base to support the goals of the Institute.

A fund-raising plan will be developed that must be active and ongoing in order to provide adequate operational, research, and educational funds for the Institute. In addition to NPS funds, contributions and in-kind services would be solicited from other Federal agencies, State and local agencies, Universities, private organizations and individuals, and corporations. In order to support high level research in the National interest and viable educational programs, funding needs to be accumulated in a reserve that can be prudently budgeted consistent with the annual Federal funding cycles. Federal funding, as stated in the 1998 Act, can only be spent in the amount that it is matched by non-Federal funds.

TIMELINE FOR FULL IMPLEMENTATION

The Institute will pass through several phases before it becomes a recognized force in the research community with the ability to sponsor a wide range of activities. The *Interim phase* is anticipated to span about three years (August 1999 to August 2002). This phase began when a Steering Committee convened to articulate expectations for the Institute and to draft specifications for recruitment of an Interim Director, and will end when the Interim Director completes the initializing tasks.

The *Gearing Up phase* is likely to take one additional year (2003), and would consist of staff recruitment, move into a building (possibly a temporary facility), initial operational setup, and the transition from the Interim Director to the Director. If funding and ability to operate permit, research grants could be distributed during this phase and the real work of the Institute can begin.

The *Basic Institute phase* would take another one to two years (2004-05) while the experience of the staff and the capacity of the Institute gradually increase, and financial resources for full operation are accumulated. If a building is constructed, it may be completed during this phase. A grant process would be operational, and results of research supported by the earliest grants may become available.

The *Fully Operational phase* should be attained by 2006, when the Institute becomes a significant and recognized resource in cave and karst research, education, and support of cave and karst management.

PLANS AND ACTIVITIES--INTERIM PHASE

Define the purview and scope of operation: Discussions will be held with a variety of interested individuals and organizations to help determine the most appropriate activities for the Institute to undertake. The question of the Institute being only a granting organization or, additionally, having an in-house research staff, will be explored. The relation of the Institute to other institutes and organizations will be defined in conjunction with those groups.

Design an organizational structure: Staffing would be based on the scope of operation determined for the Institute. An important factor in the size and scope is the level of funding available to support the operation. Business models of other research institutions will be studied for ideas and to determine the most appropriate model for this Institute to adopt.

Form partnerships: Formal agreements with agencies, universities, and other organizations will be signed. A concerted effort is being made by the Interim Director to meet with a wide variety of groups. The Interim Director also is making international contacts in order to lay a foundation for international collaboration in cave and karst research and information exchange.

Funding sources: Private or state/local government funds must match Federal funds to support the Institute's operations. To accomplish this, a "bank account" of non-federal funding needs to be accumulated before matching funds would be available from Congress (2002 Federal funding requests will be developed early in 2001). A plan is in development to target likely non-federal donors and collaborators and establish partner agreements. Partnerships and collaborations with universities will be explored. State and other governmental levels are potential sources of non-federal funds for operations and for grants. Private or corporate contributions also are potential sources of non-federal funds for operations or grants.

Find a physical facility: The Institute has the option of renting space (or accepting existing space as an in-kind contribution) or constructing a building. The City of Carlsbad is a major player in the building decision, because the location of the Institute is a planning and economic factor in Carlsbad. The City and New Mexico Tech are collaborating to request building funds from the New Mexico legislature. If successful, the physical facility for the Institute would include office, laboratory, library, and computer space. If the request for full State funding is successful, a science center also would be built, which would include an auditorium, an IMAX theater, a museum, and an interactive science center focusing on cave and karst systems and resources.

Assess research needs: The Institute can provide a national scope and overarching goals to cave and karst research. These needs would be compiled through discussions with a wide variety of interest groups, scientists, and resource managers. Focus groups may be hosted at national professional meetings to provide a forum for input into the research needs.

CURRENT STATUS

At the time of this writing (January 2001), the Interim Director has been in place for six months—one-quarter of the appointment period. Is one-quarter of the work accomplished? Probably not in all cases, but this is difficult to judge. Tasks in the initial phase are not proceeding in a linear fashion. Many aspects have been started or drafted, but none are complete. Each meeting

with groups or individuals interjects new ideas into the process and revisions are made.

Purview and scope: A Federal Working Group has been formed to assist the Interim Director in developing the operating plan for the Institute. The Group is comprised of representatives from National Park Service, U.S. Geological Survey (USGS), Bureau of Land Management (BLM), Fish and Wildlife Service (FWS), and U.S. Forest Service (USFS). Additionally, each person in the Group has responsibility to represent and communicate with non-Federal constituency groups.

Organizational structure: It is envisioned that the initial Institute would be a staff of six or seven people that, in addition to the Director, might include a Scientist Coordinator, Education Coordinator, Computer/GIS, two administrative or support positions, and a Librarian if the library collection is significant. Some operational support, such as contracting and other administrative duties, may need to be supported out of other NPS units for a time. A voluntary Science Advisory Board is likely to be part of the organization, that would assist in defining research priorities and with a grant review and ranking process. Additionally, a volunteer Strategic Advisory Board may be formed to advise the Director of the Institute on the priority activities to focus on each year.

Partnerships: Partnerships may be informal, a mutual verbal agreement for parties to support each others missions and goals, or they may be formal agreements with specific tasks and activities. A partnership agreement has been signed between the Institute and New Mexico State University, which has a campus in Carlsbad, for a small amount of office space and administrative support during the interim and gearing up phases. A formal agreement among the Institute, New Mexico Tech, and the City of Carlsbad is under negotiation. The purpose of the agreement is to define the roles of all parties during the interim and gearing up phase of the Institute and to lay groundwork for partnerships when the Institute is fully functional.

Several NPS agreements, although not specific to the Institute, are available for use by the Institute if needs arise. An Interagency Agreement is being signed among Department of the Interior agencies (BLM, FWS, USGS, NPS) and Department of Agriculture (USFS) to achieve more effective and efficient management of caves through cooperative action among those agencies. The agreement identifies areas of mutual concern and establishes avenues for cooperation in the management, research, protection and conservation of caves and karst.

The NPS Mexico Affairs Office (MEAF) has formal agreements with Mexican government departments and

universities. The Institute can work through the MEAF to form partnerships and collaborative activities with Mexico related to cave and karst activities. Plans are being made to meet with Mexico representatives. Similar activities would be initiated with Canada through existing agreements.

Funding: The focus on non-Federal funding at this time is for building construction. Discussions are in progress with the City of Carlsbad and New Mexico Tech who intend to solicit state funds for a building. If enough funding can be obtained, the Institute would be integrated into a Carlsbad Science Center that includes and educational museum, an IMAX, and an auditorium. The source(s) of Federal and private funding for basic Institute operations and for research and educational activities have not yet been clearly identified.

Physical facility: Carlsbad has been working with a contractor to conceptually design a riverfront commercial complex, which includes conceptual options for the Institute and an educational museum facility. Additionally, a renovated building near the proposed riverfront development may be an option rather than a new building. Parallel options are being pursued to assure at least a temporary location by about mid-2003. A construction project, if decided upon, would likely not be completed until 2005.

Research needs: Ideas for research needs are being accumulated through informal and formal discussions with scientists and resource managers. As a list grows, groupings of research areas should emerge, which would form the basis for articulating national research needs. The February 2001 Karst Interest Group Workshop constitutes one of the opportunities to discuss research needs and add to the growing list, and focus groups could be convened at professional meetings as a special session, such as at AGU or GSA.

REFERENCES

National Park Service, 1994, National Cave and Karst Research Institute Study Report to Congress, 37 p.